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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,453

09/28/2004

Jeroen Arnoldus Leonardus Johannes Raaymakers

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EXAMINER

GUPTA, PARUL H

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,453	Applicant(s) RAAYMAKERS, JEROEN ARNOLDUS LEONARDUS J	
	Examiner Parul Gupta	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 14-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-12 and 14-19 are pending for examination as interpreted by the examiner, based on the amendment filed on 3/29/07.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 6, 8-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., US Patent 6,714,496 in view of Kusano et al., US Patent 5,206,848, further in view of Hajjar et al., US Patent 5,627,808.

Regarding claims 1 and 14, Park et al. teaches a tilt control device for controlling a radial tilt of a recording surface of an optical disc with respect to an optical recording/reproducing beam (see abstract), said tilt control device comprising: control means such as a processor for generating two focus controlling outputs (FET1 and FET2); and actuating means such as an actuator (inherent structure that moves element 20 in the focusing direction and element 40 of figure 5, which is a "tilt motor" as explained in column 7, line 55) for receiving said two focus controlling outputs for controlling a focusing state and the radial tilt of the optical recording/reproducing beam utilizing said received two focus controlling outputs (FET1 and FET2). Park et al. does not but Kusano et al. teaches actually tilting the beam instead of the disk (column 1, lines 54-60). It would have been obvious to one of ordinary skill in the art at the time of

the invention to include the concept of tilting the beam instead of the disc as taught by Kusano et al. into the system of Park et al. The motivation would be to contribute to a compact design of the pickup and lower the manufacturing cost (column 1, lines 35-39 of Kusano et al.). Park et al. in view of Kusano et al. does not but Hajjar et al. teaches that said control means or processor determines a radial tilt value based on a differentiation of focus control values obtained at different radii of said optical disk (column 3, lines 45-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of storing a mean value determined in the given way to be used in tilt control as taught by Hajjar et al. into the system of Park et al. in view of Kusano et al. This would serve to fully compensate for cross-track tilt that may be present between the media and the optical head (column 1, line 62-column 2, line 4 of Hajjar et al.).

Regarding claim 9, Park et al. teaches an optical disc player comprising a tilt control device as claimed in claim 1 (shown in figure 5).

Regarding claim 10, Park et al. teaches a tilt control method for controlling a radial tilt of a recording surface of an optical disc with respect to an optical recording/reproducing beam, said tilt control method comprising the acts of: generating a focus controlling output and a tilt controlling output (FET1 and FET2 from element S20 of figure 1); receiving said focus and tilt controlling outputs at an actuator (inherent structure that moves element 20 in the focusing direction and element 40 of figure 5, which is a "tilt motor" as explained in column 7, line 55) to control a focusing state of the optical recording/reproducing beam and the radial tilt utilizing said received focus and tilt

controlling outputs (column 2, lines 9-35), characterized in that said method further comprises the step of: determining a radial tilt value based on a differentiation of focus control values (FET1 and FET2). Park et al. in view of Kusano et al. does not but Hajjar et al. teaches that said control means determines a radial tilt value based on a differentiation of focus control values obtained at different radii of said optical disk (column 3, lines 45-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of storing a mean value determined in the given way to be used in tilt control as taught by Hajjar et al. into the system of Park et al. in view of Kusano et al. This would serve to fully compensate for cross-track tilt that may be present between the media and the optical head (column 1, line 62-column 2, line 4 of Hajjar et al.).

Regarding claim 4, Hajjar et al. teaches the device as claimed in claim 1, wherein said control means ("control actuator") positions a sledge (optical head of element 9 in figure 6 is designed to move to control tracking to serve the same function as the sledge) at at least two different radial positions, controls said actuating means to adjust the focus, and measures said focus control values at said at least two different radial positions (column 3, lines 45-50).

Regarding claims 6 and 19, Hajjar et al. teaches the device as claimed in claims 1 and 14, wherein said control means such as a processor generates said focus controlling outputs based on measured mean focus control values and corresponding radial steps between two measurements (column 3, line 45 -column 4, line 4). The idea

of finding the mean based on various measurements from different radial positions is given in column 1, lines 43-61. The given section refers to taking measurements at different radial positions to find calibration radii. Then, a signal representative of the focus based on the radius is determined. The concept of finding a representative based on the radial position serves the same purpose as the applicant.

Regarding claims 8 and 18, Hajjar et al. teaches the device as claimed in claims 1 and 14, wherein said device further comprises a tilt table ("LUT" of column 4, lines 5-21) for storing an information indicating mean disc tilt values and corresponding radial positions in figures 3, 4, and 5.

Regarding claim 12, Hajjar et al. teaches the method as claimed in claim 10, wherein said receiving said focus and tilt controlling outputs act comprises using a mean focus controlling output for tilt control (column 2, lines 25-33). The idea of finding the mean based on various measurements from different radial positions is given in column 1, lines 43-61. The given section refers to taking measurements at different radial positions to find calibration radii. Then, a signal representative of the focus based on the radius is determined. The concept of finding a representative based on the radial position serves the same purpose as the applicant.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al., further in view of Morimoto, US Patent 6,266,301.

Regarding claim 3, Park et al. in view of Kusano et al. teaches the device as claimed in claim 1 but does not teach the further limitations of claim 3 of PID controller outputs.

Morimoto teaches a device wherein said focus controlling outputs are Proportional Integral Derivative PID controller outputs (shown in figure 10 and explained in column 7, lines 15-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of PID controller outputs as taught by Morimoto into the system of Park et al. in view of Kusano et al. in view of Hajjar et al. This would serve the purpose of lowering costs (column 2, lines 39-41 of Morimoto).

4. Claims 2, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al., further in view of Nagasato, US Patent 6,181,670.

Regarding claims 2 and 11, Park et al. in view of Kusano et al. in view of Hajjar et al. teaches the device and method as claimed in claims 1, 10, and 14 but does not teach the further limitations of claims 2 and 11 of a split coil arrangement.

Regarding claims 2 and 15, Nagasato teaches in figure 7 the device wherein said actuating means or actuator comprises a split focus coil arrangement for providing focus and tilt adjustment (done by elements 112 and 114), and said control means or processor supplies said two focus controlling outputs (currents sent to drive each coil) to respective coils of said split focus coil arrangement.

Regarding claim 11, Nagasato teaches the method as claimed in claim 10, wherein said receiving said focus and tilt controlling outputs act comprises using a split coil arrangement arranged to provide a focus adjustment, said focus and tilt controlling outputs (currents) being supplied to respective coils of said split coil arrangement (column 12, lines 14-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of split coil as taught by Nagasato into the system of Park et al. in view of Kusano et al. in view of Hajjar et al. This would serve to provide an objective lens driving device capable of efficiently and quickly correcting the tilt of an objective lens relative to a signal recording surface of an optical disk so that the comatic aberration of a spot formed by a light beam on the signal recording surface of the optical disk is reduced (column 2, lines 55-62 of Nagasato).

5. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al. as applied to claim 1 above, and further in view of Motosyuku et al., US Patent 5,602,566.

Park et al. in view of Kusano et al. in view of Hajjar et al. teaches all of the limitations of claims 1 and 14.

Park et al. in view of Kusano et al. in view of Hajjar et al. does not teach the limitations of claims 5 and 16.

Motosyuku et al. teaches a device, wherein said control means such as a processor calculates (based on FET1 and FET2) and is arranged to set a mean disc tilt value in a tilt register (column 7, lines 32-50). The device taught records the tilt angle

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value of a processor into a register. This is similar to recording the tilt value of a disc as both inventions relate to fixing errors caused by tilt, although they are for two different devices.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the recording of the mean disc tilt value previously calculated into a tilt register as taught by Motosyuku et al. into the system of Park et al. in view of Kusano et al. because it is well known in the art that registers are reliable storage means for values that must be used in other calculations.

Allowable Subject Matter

6. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7 and 17 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a mean disc tilt value being obtained based on the equation of the claim that refers to

$$r_{\beta} = \frac{G_c c_t \Delta r_f}{c_f (a_1 + a_2) \Delta R}.$$

The following is a list of the closest prior arts that were noted:

Hajjar et al., US Patent 5,627,808 teaches the equation $Cb = (Vb - Vc)/(Rb - Rc)G1$ at the bottom of column 3. Although the equation is used for the same purpose of determining the tilt signal, Hajjar et al. uses a different method.

Response to Arguments

7. Applicant's arguments with respect to the claimed invention have been considered but are not persuasive. Applicant claims that the signals provided by Park et al. are time measurements and not focus controlling outputs. The examiner disagrees. As signals FET1 and FET2 are outputs being used to control the focusing, they are focus controlling outputs.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260.

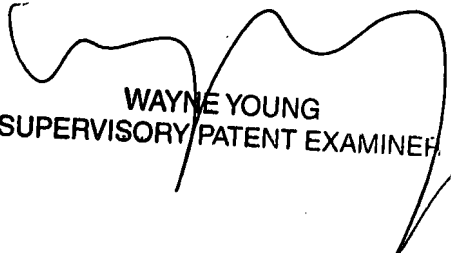
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The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
6/5/07


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